



# Architecture-Centric Virtual Integration Workshop

Software Engineering Institute  
Carnegie Mellon University  
Pittsburgh, PA 15213

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September, 29 2014



Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE <b>29 SEP 2014</b>		2. REPORT TYPE <b>N/A</b>		3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>Architecture-Centric Virtual Integration Workshop</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) <b>Julien Delange and Peter Feiler</b>				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Software Engineering Institute Carnegie Mellon University Pittsburgh, PA 15213</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>The original document contains color images.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>SAR</b>	18. NUMBER OF PAGES <b>13</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

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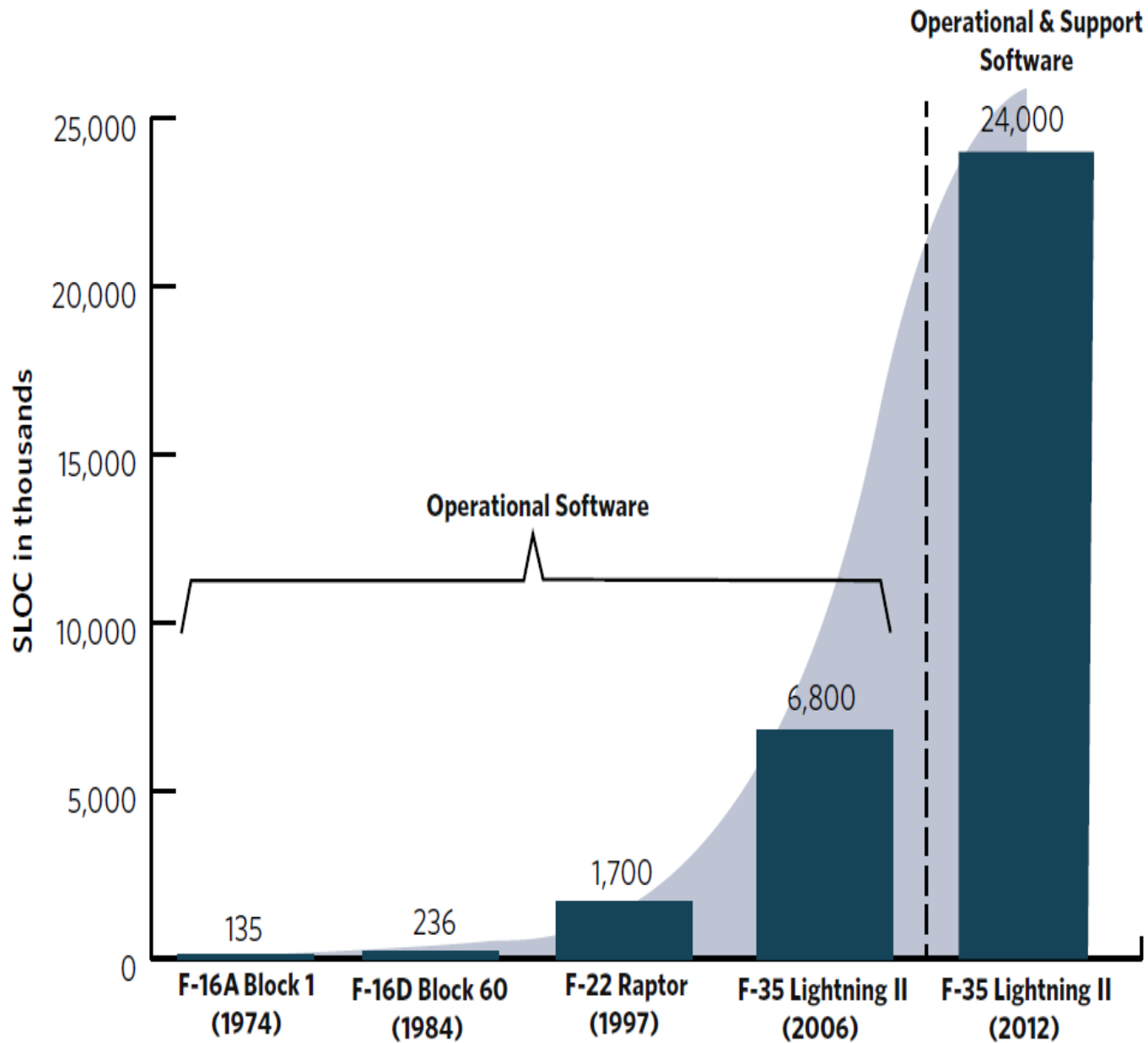
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	1960	1970	1980	1990	2000	2010
Drivetrain	• Ignition		• Fuel Injection • Enginecontrol Otto	• Valve control • Diesel pump • Slip control	• FSI • Pumpe-Düse-ECU • 32bit Controller • Hybrid	• electromagn. Valves? Fuel cell •
Chassis			• ABS	• ESP • Bremsassistent • controlled Damping	• Autom. Cruise Control • ACC Stop+go • Lenkhilfe • Überlagerungslenkung • skyhook-control • Wankausgleich	• elektrohydr. Brake • brake-by-wire? • autom.emerg. stop • UVF? • steer-by-wire?
Safety			• Airbag		• 2step Airbags • bytflight • precrash	• Pedestrian Protect.
Comfort	• intervall Wiper		• Climate control	• Xenon-lights	• Keyless Entry • advanced frontlighting • 2Motor-Wiper	
Power+Wirung	• 12V		• CAN	• D2B • watercooled.Generator • elektron. ZE	• MOST,LIN • TTP/Flexray • Startergenerator • power module	• APU? • 42V?.
Information	• Radio		• Trip computer	• Sound systems • Satellite radio • GSM • GPS Navigation	• TV • DAB • bluetooth • UMTS • Internet	• Infotainment • Veh.-Veh.-Comm.

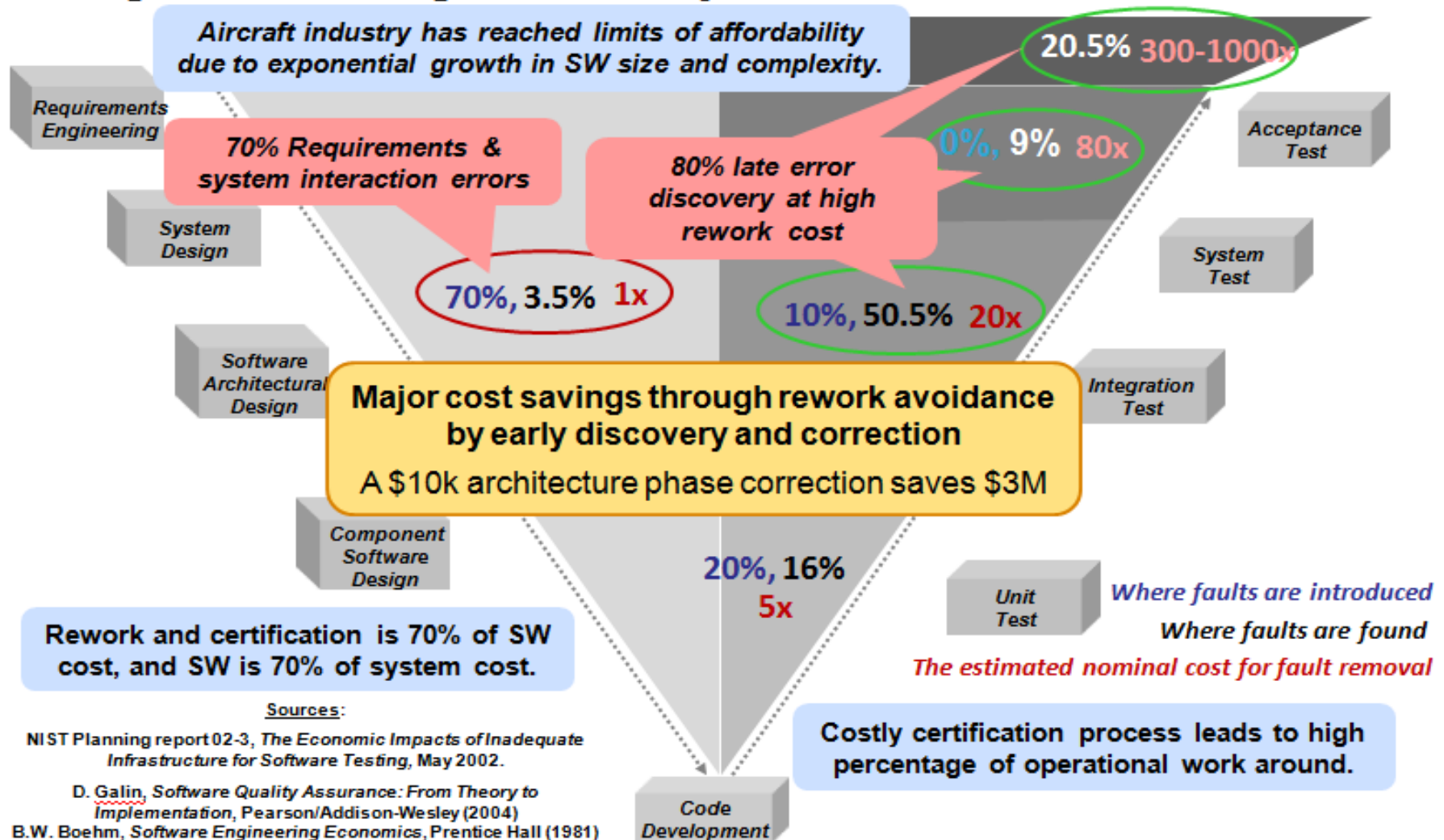




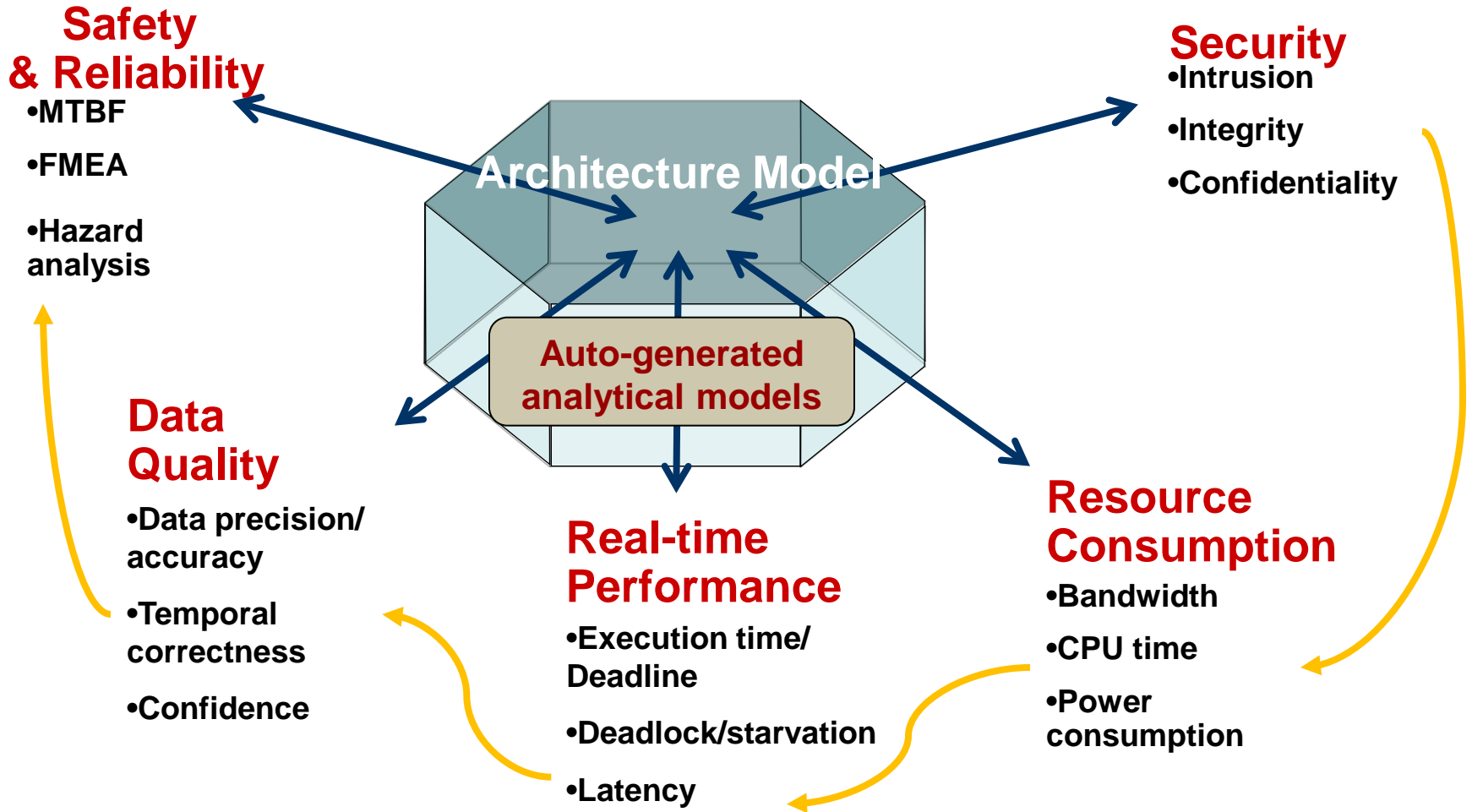
Source: “Hierarchical Scheduling of Complex Embedded Real-Time Systems”

# Errors are introduced early but detected (too) late

## High Fault Leakage Drives Major Increase in Rework Cost



# Architecture Analysis Design Language



# Workshop Statistics

8 accepted papers

Connection with various safety-critical systems design aspects

International community (**Canada, France, Japan, Spain, Russia, USA**)

2 tutorials

AADL Inspector, Pierre Dissaux

BLESS, Brian Larson

Shows maturity and expansion of the technology





# Workshop Program - Morning

0800-0815 - **Welcome and Workshop Presentation** - *Julien Delange*

0815-0900 - **Keynote: The Story of AADL** - *Peter Feiler*

0900-0930 - **A discrete-event simulator for early validation of avionics systems** - *Denis Buzdalov and Alexey Khoroshilov*

0930-1000 - **Executable AADL: Real-Time Simulation of AADL Models** - *Pierre Dissaux and Olivier Marc*

1000-1030 - **Automatic Derivation of AADL Product Architectures in Software Product Line Development** - *Javier Gonzalez-Huerta, Silvia Abrahao, Emilio Insfran and Bruce Lewis*

1030-1100 - **Coffee Break**

1100-1130 - **Towards an Architecture-Centric Approach dedicated to Model-Based Virtual Integration for Embedded Software Systems** - *Huafeng Yu*

1130-1230 - **AADL Inspector Tutorial** - *Pierre Dissaux*



# Workshop Program - Afternoon

**0200-0230 - An Extension for AADL to Model Mixed-criticality Avionic Systems Deployed on IMA architectures with TTEthernet -**

*Robati Tiyaam, Amine El Kouhen, Abdelouahed Gherbi, Sardaouna Hamadou and John Mullins*

**0230-0300 - Contract-based specification and analysis of AADL models -** *Ernesto Posse and Juergen Dingel*

**0300-0330 - Modeling Shared-Memory Multiprocessor Systems with AADL -** *Stéphane Rubini, Pierre Dissaux and Frank Singhoff*

**0330-0400 - Coffee Break**

**0400-0500 - BLESS Tutorial -** *Brian Larson*

**0500-0530 - Multi-core Code Generation from Polychronous Programs with Time-Predictable Properties -** *Zhibin Yang, Jean-Paul Bodeveix and Mamoun Filali*

**0530-0600 - Workshop Discussion: future directions for architecture-centric research efforts? - Conclusion and Follow-Up -** *Moderator: Julien Delange*

# AADL standardization committee

Located in the conference area at Innova Room

Discussions on AADL evolution (ballot, new annexes, etc.)

Free attendance, contributions are welcome

# Post-Workshop Dinner

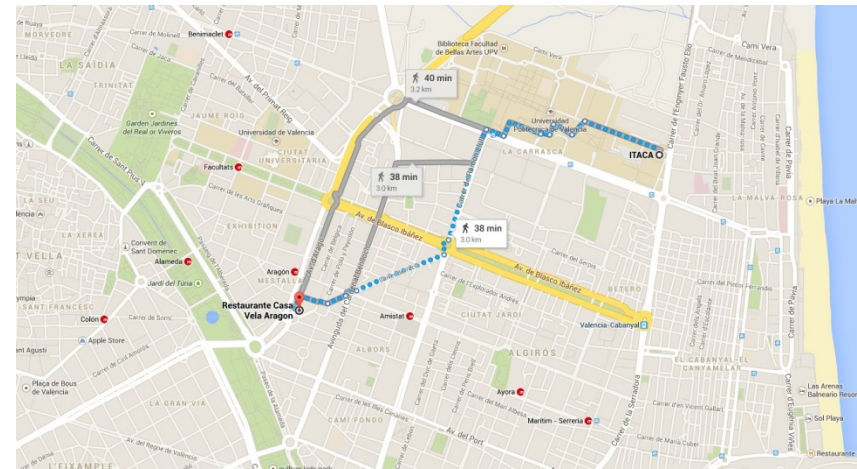
Meeting the AADL community in a great location

Located at Casa Vela (Aragón), Avenida Aragón, 24, 46021 Valencia

Fix price, 25 euros including tapas, wine and desert

About 3 Km from the conference

<http://www.aadl.info/acvi>



# Enjoy the workshop

Thanks to the conference organizers ...

... especially to Emilio and all local organizers!

Join the post-workshop dinner

Details online, check <http://www.aadl.info/aadl/acvi/>

Please provide feedback, suggestions, comments

E-mail: [acvi14@easychair.org](mailto:acvi14@easychair.org)

Engage participation to next edition



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